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(54) **ROCKER LATCH FOR CONTROLLING
ENGINE VALVE ACTUATION**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,547,087 A * 12/1970 Siegler F01L 13/06
123/321
4,423,709 A * 1/1984 Arrieta F01L 1/181
123/198 F

(Continued)

FOREIGN PATENT DOCUMENTS

GB 355812 A 8/1931

OTHER PUBLICATIONS

International Search Report issued in PCT/US2013/076136 on May
20, 2014.

(Continued)

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(57) **ABSTRACT**

Engine valve actuation systems and methods used to decom-
press an engine cylinder during engine start-up, shut-down,
and for bleeder braking are disclosed. An exemplary system
may include a rocker arm pivotally mounted on a rocker shaft,
and a structure mounted adjacent to the rocker arm in a fixed
position relative to the rocker arm. A latch piston may be
slidably disposed between the rocker arm and the structure.
The latch piston may be selectively extended to engage both
the rocker arm and structure to limit the pivotal motion of the
rocker arm and maintain the engine valves in an open condi-
tion.

23 Claims, 9 Drawing Sheets

